

R E M A R K S

This is in response to the Office Action that was mailed on September 8, 2003. Claims 1-18 and 20-25 are in the application.

Claims 1-5, 9-11, 13, 14, 16, and 17 were rejected under 35 U.S.C. §103(a) as being unpatentable over US 4,250,661 (Kodera) in view of US 5,108,844 (Blemburg). The rejection is respectfully traversed.

Kodera relates to a covering multiplayer film or sheet structure for agricultural application, which consists essentially of (1) a film or sheet of a resin composition comprising (A) 100 parts by weight of a thermoplastic resin selected from the group consisting of olefinic resins and vinyl chloride resins and (B) about 1 to 40 parts by weight of an acetal resin, and (2) a layer of the thermoplastic resin (A) laminated to at least one surface of the film or sheet (1).

In contrast, the film of claim 1 in the present invention comprises: a structural member (A) molded from a resin composition comprising polyacetal resin (a-1) and a resin (a-2) selected from polyolefin resin, polyolefinic elastomer, and hydrogenated butadienic elastomer; a structural member (B) molded from thermoplastic resin (b); and a structural member (C) molded from polyacetal resin (C), which structural members are integrated by welding in the order (C)-(A)-(B).

As compared with the structure of the present invention, the film or sheet of Kodera lacks a member molded from polyacetal resin. In this connection, Kodera

clearly teaches that the multiplayer film or sheet **should not** contain a layer having a polyacetal content of 40 weight-% or more, let alone a layer molded from polyacetal, as the resultant film undesirably becomes brittle, less resistant to abrasion, and less transparent. Column 4, lines 42-52. Thus Kodera clearly teaches away from the introduction of a third layer molded from polyacetal.

Blemburg, which contains no mention of a polyacetal layer, does not suggest introducing a polyacetal layer into the film or sheet of Kodera. Nothing in Blemburg contradicts the Kodera teaching that a layer molded from polyacetal should not be introduced.

Therefore, the structure of the present invention – comprising the structural member (C) molded from polyacetal resin – is not obvious.

Moreover, the Examiner cites Blemburg to show that where layers X and Y are to be adhered together, a technique of introducing an adhesive layer or a tie layer comprising a blend of some or all of the components X and some or all of the components Y was known. Cf. column 2, lines 21 ff. Now, in the invention of Kodera, the layers to be laminate are (1) a film or sheet comprising (A) 100 parts by weight of a thermoplastic resin and (B) about 1 to 40 weight-% of an acetal resin, and (2) a layer of the thermoplastic resin (A). In order to improve adhesion of the Kodera structure according to the technique of Blemburg, a third layer comprising a blend of (1) and (2) must be interposed between (1) and (2). The resulting laminate would comprise a film (1), a layer of a blend of (1) and (2), and a layer (2) in this

order. Therefore, the combination of Kodera and Bleemberg does not result in the structure comprising (C)-(A)-(B) in this order as defined in the present claims.

To summarize, Kodera teaches away from the introduction of a structure molded from polyacetal in the film or sheet. Even in view of Bleemberg, there is no motivation to reverse the above “teaching away”. Furthermore, the structure of the film or sheet resulting from the combination of Kodera and Bleemberg is distinguishable from the structure as recited in claim 1 herein. The rejections of claims 1-5, 9-11, 13, 14, 16, and 17 under 35 U.S.C. §103(a) as being unpatentable over Kodera in view of Bleemberg should be withdrawn.

Claim 6 was rejected over Kodera in view of Bleemberg and US 4,377,667 (Sakurai). Claims 7, 8, 12, 15, and 20 were rejected over Kodera in view of Bleemberg and US 4,535,127 (Matsuzaki). These rejections are respectfully traversed.

Sakurai is cited only to show that the molecular weights of polyacetals can be controlled by utilizing a chain transfer agent, such as water, methanol, and formic acid, in the polymerization system. Matsuzaki is cited only to show that a polyacetal copolymer, composed of an acetal polymer portion and a thermoplastic elastomer portion having soft segments and hard segments, was known.

As discussed above, Kodera teaches away from the introduction of a structure molded from polyacetal in the product. None of Bleemberg, Sakurai, and Matsuzaki

suggest the introduction of polyacetal layer in the film or sheet of Kodera. For this reason, the structures of present claims 6-8, 12, 15, and 20 (all of which are dependent upon claim 1) are not obvious. The rejections of these claims, therefore, should be withdrawn.

Claims 1-4, 10, 11, 13, 16, 17, 21, and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over JP 10-029276 (Polyplastics) in view of Bleemberg. The rejection is respectfully traversed.

Claim 1 of the Polyplastics reference can be translated as follows:

A laminate obtained by laminating a polyacetal resin layer and an olefinic resin with or without a medium of an adhesive layer, the polyacetal layer containing a modified polyacetal obtained by introducing at least one modifying residue selected from the group consisting of epoxy groups, carboxyl groups, acid anhydride groups, hydroxyl groups, amide groups, amino groups, and isocyanate groups; and the adhesive layer and/or the olefinic resin layer comprises a modified olefinic resin.

Thus, the Polyplastics laminate is a laminate comprising a modified polyacetal and a modified polyolefinic resin, between which an adhesive layer, to which modifying residue is introduced, may be present. Although the Examiner indicates that Polyplastics “does not teach that the laminate should comprise a tie layer”, in fact Polyplastics alone teaches the use of an adhesive layer between the two layers, as recited in claim 1 of the reference.

The object of the Polyplastics invention is to provide a laminate of polyacetal resin layer and a polyolefin resin layer wherein adhesion between the two layers is improved. In the Polyplastics invention, however, the adhesion between the polyacetal layer and the polyolefin layer is improved by introducing modifying residues ***into both the polyacetal layer and the polyolefin layer of the adhesive layer, if any.***

Although the Polyplastics reference teaches a laminate comprising a polyacetal layer, an adhesive layer, and a polyolefin layer, the polyacetal layer and the adhesive layer or the polyolefin layer ***have to be modified*** with a residue selected from the group consisting of epoxy groups, carboxyl groups, acid anhydride groups, hydroxyl groups, amide groups, amino groups, and isocyanate groups, and the adhesive layer and/or the olefinic resin layer comprises a modified olefinic resin. In this respect, the inventive concept of Polyplastics is totally different from that of the present invention. In the present invention, the structure molded from polyacetal is not modified with such groups. In the present invention, the adhesion between the structure molded from polyacetal (C) and the structure molded from polyolefin (A) is achieved by the layer comprising polyacetal and the polyolefin, not by the interaction between the modifying residues introduced in the two layers. The inventive concept of the Polyplastics disclosure is thus totally different from that in the present invention.

Furthermore, according to Bleemberg, where layers X and Y are laminated, a blend of components of X and Y can be used as a tie layer. If this is applied to the Polyplastics laminate, the blend will comprise a modified polyacetal and a modified polyolefin. The adhesion between layers thus still depends on the interaction between the modifying residues in the layers. Therefore, Bleemberg adds nothing related to the structure of the present invention to the teachings of the Polyplastics reference.

The inventions of claims 1-4, 10, 11, 13, 16, 17, 21, and 22 are not obvious from the Polyplastics disclosure, alone or in view of the Bleemberg disclosure.

Claim 18 was rejected over Polyplastics in view of Bleemberg and JP 58-053953A (JSR). The rejection is respectfully traversed. Polyplastics and Bleemberg are discussed above. JSR is cited only to show that the introduction of polyamide into a polyolefin to control the compositions' s mechanical strength was known. This showing does not alter the fact that claim 18 describes an invention that – in its totality – is neither taught nor suggested by the combination of Polyplastics, Bleemberg, and JSR. As pointed out above, in the Polyplastics laminate, the layers composing the laminate are essentially modified so that the adhesion between layers is improved by the interactions between the residues introduced in the layers. The structure of the present invention, which comprises a structural member (C) molded

from polyacetal, can be distinguished in this respect. The rejection of claim 18 should be withdrawn.

Claims 7, 8, 12, 20, 23, and 24 were rejected over Polyplastics in view of Bleemberg and Matsuzaki. The rejection is respectfully traversed. Polyplastics and Bleemberg are discussed above. Matsuzaki is cited only to show that a polyacetal copolymer composed of an acetal polymer portion and a thermoplastic elastomer portion having soft segments and hard segments was known. As pointed out above, in the Polyplastics laminate, the layers composing the laminate are essentially modified so that the adhesion between layers is improved by the interactions between the residues introduced in the layers. The structure of the present invention, which comprises a structural member (C) molded from polyacetal, can be distinguished in this respect. The rejection of claims 7, 8, 12, 20, 23, and 24 – which are dependent from claim 1 – should therefore be withdrawn.

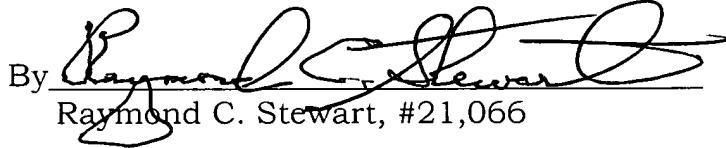
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Richard Gallagher (Reg. No. 28,781) at the (703) 205-8008.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No.

02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17;  
particularly, extension of time fees.

Respectfully submitted,

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